## THE WEATHER ELEMENTS

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### PRESSURE AND WINDS

The prominent features of the weather during May, 1925, were the rapid and frequently record-breaking changes in temperature during the early part of the third decade over many districts to eastward of the Rocky Mountains, and the continued widespread deficiency in precipitation over much of the same region, which has been more or less persistent since the beginning of the year.

The atmospheric circulation was on the whole rather sluggish for May and few cyclones were sufficiently active to cause important precipitation over widespread areas. In fact, due to rather persistent anticyclonic conditions over the central Great Plains and lower Missouri Valley districts, only two cyclones crossed the interior portions of the country, and these were not attended by widespread or generally heavy precipitation.

The first important cyclone of the month approached the middle Pacific coast about the 12th, attended by unusual precipitation for May over the central and northern portions of California. More or less rain fell over the middle plateau and Rocky Mountain regions as it moved southeastward to Colorado and New Mexico during the following two days. By the morning of the 16th the center was over eastern Iowa and the rainfall area had overspread the lower Missouri and upper Mississippi Valleys and portions of the Great Lakes. During the following 24 hours the storm moved to the St. Lawrence Valley, and precipitation was general over the Ohio Valley and North Atlantic States and also reached portions of the Middle Gulf States and Florida.

The second important storm of the month moved from western Canada to the vicinity of North Dakota by the morning of the 22d and thence southeasterly to the middle Atlantic coast during the following three days. This storm was attended mainly by scattered precipitation over the northern, central, and eastern districts, the rain turning to snow in some of the Northern States, due to a decided change to colder closely following the storm center.

The anticyclones were the important feature of the pressure distribution, and they were rather persistent over the interior portions of the country, causing marked changes to lower temperatures on several occasions.

For the month as a whole the pressure averaged highest over the middle Mississippi and lower Ohio Valleys, a condition not unusual, though the pressure over this and adjacent areas during May was distinctly higher than normal.

Generally speaking, the average pressure for May is everywhere normally less than for April in both the United States and Canada, save for a small area in extreme eastern New England and over the adjacent portions of Canada. During May, 1925, a large area over the interior portions of the country had mean pressure materially higher than in April preceding.

The presence of high pressure over the interior portions of the country favored southerly winds over the Great Plains and over many northern districts, while they were frequently from northerly points in the East Gulf States and from westerly directions along the Atlantic coast.

High winds were mainly of a local character and no severe storms affected large areas, caused unusual loss of life, or were attended by extensive damage to property. A list of those reported during the month follows at the end of this section.

### TEMPERATURE

As stated at the beginning of this section, May, 1925, was notable for the wide extremes of temperature occurring during the month. It is not unusual for a single month to show temperature records either higher or lower than previously observed in that month or even show both extremes over limited and separate regions, but it is rare that these occur in the same month over identical extended areas, and rare indeed that they should occur over such areas within almost a few hours of each other, particularly in a late spring month, when the atmospheric circulation has largely assumed the quiet summer type.

During the period from the 22d to the 25th a cyclone of moderate proportions moved southeastward from the vicinity of North Dakota to the middle Atlantic coast. As barometric pressure was moderately high south of the storm center, warm winds from the South in conjunction with mainly clear weather immediately preceding the area of low pressure favored the occurrence of unusually high maximum temperatures, beginning on the 22d in the upper Mississippi Valley and continuing over the 23d and 24th in the regions to the south and east. During this period the highest temperatures ever observed in May or at least so early in the season were reported over extensive areas from the middle and upper Mississippi Valley eastward and southeastward to the middle Atlantic coast.

Immediately following this low-pressure area and its accompanying warmth, an anticyclone of the interior Canada type moved over nearly the same course, carrying the cold attending its origin quickly into the heated regions and causing marked and rapid changes in temperature. Over much of the region referred to the minimum temperatures attending the anticyclone were the lowest ever observed in May, or the lowest observed so late in the season.

In portions of the middle and upper Mississippi Valley, the changes from the extreme heat of the 22d to the marked cold of the 24th ranged up to nearly 80°, and in approximately 36 hours there were drops of from 60° to 65° in many cases.

Aside from the closely associated periods of warmth and cold referred to above, cool weather for the season prevailed during the first few days of the month over most districts from the Rocky Mountains eastward. Cool weather for May prevailed in the upper Missouri Valley about the end of the first decade, when temperatures at points in Montana were 10° or more below freezing and as low as ever experienced so late in spring. Temperatures were also unusually low in the Dakotas on the 16th, and some unusually high temperatures occurred in the same area on the 30th.

For the month as a whole there was a sharp change from the unusual warmth that had prevailed from February to April, inclusive, over the districts from the Rocky Mountains eastward, the averages for May ranging from 2° to 6° below the normal over much of the eastern half of the country. West of the Rocky Mountains the monthly temperatures continued above the normal, as has been the case since the beginning of the year, and at a few places the means were the highest ever observed in May.

Maximum temperatures were as high as 100°, or more, over much of the interior and southern parts of the

country, reaching extremes of 111° in North Dakota and 115° in Texas.

Minimum temperatures were freezing or lower at some time during the month in all the States except a few in the extreme Southeast. The lowest reported was 7° in the mountain regions of Wyoming, and a reading as low as 38° was recorded in northern Florida.

Frosts were frequent during the month over most central and northern districts east of the Rocky Mountains and the generally cool conditions retarded the season's progress, the early advance of which, brought about by the warmth of preceding months, had been partially lost by the end.

### PRECIPITATION

May, 1925, like the four preceding months, was greatly deficient in rainfall as compared with the normal over much of the country, and at the close many sections were suffering severely from lack of moisture. In the upper Mississippi Valley and adjacent portions of the Great Lakes region the rainfall was frequently the least of record in May, observations extending back from 50 to 75 years. Similar conditions, though less pronounced, prevailed in many parts of the cotton belt. Over much of the interior of the country the deficiencies for the three spring months have been large and the total precipitation has been the least ever known for those months, while in other cases all five months of the present year have shown marked deficiencies and the total fall from January to May, inclusive, has been less than ever before received during those months. On the other hand, in the far West, notably in California, where precipitation was greatly deficient during the earlier months of the rainy season, the falls were more generous and at points in the vicinity of San Francisco the month as a whole received the heaviest falls in May since 1849, when observations first began. Considerable damage from the unusual rainfalls so late in the season resulted to hay and some early fruits, but otherwise they were of much benefit.

In portions of Texas where drought had persisted for long periods, heavy rains brought some relief about the end of the first decade and again at the end of the month. Also in northern Florida and adjacent sections where locally drought had existed since the middle of March some relief was afforded by occasional showers, but the deficient rainfall of preceding months caused unusually dry conditions at the end.

Considering the States as a whole only Florida, New Mexico, California, and Oregon had monthly falls in excess of the normal, all other States showing deficiencies, these being particularly large in the States bordering on the Mississippi River.

### SNOWFALL

In California some snow fell in the higher mountains, the total falls for the month ranging up to nearly 3 feet in favorable localities, but practically all snow had melted by the end of the month.

There were moderate falls in the higher ranges of the Rockies from Colorado northward, and light falls along the northern border and over the Appalachian Mountain districts from Virginia northward. The latter falls were mainly associated with the cold period near the middle of the last decade. In parts of western Pennsylvania depths ranging from 3 to 6 inches were measured, breaking all May precedents both in amounts and lateness of occurrence. Some snow fell at the higher elevations in the vicinity of Northfield, Vt., on the 25th, the latest of record for that locality.

Snow was observed at La Crosse, Wis., on the 24th and 27th, at Port Huron, Mich., on the 24th, and at Parkersburg, W. Va., on the 25th, all the latest of record. At Seattle, Wash., snow occurred on the 2d, the only record of snow in May at that place.

### RELATIVE HUMIDITY

As a result of the generally dry condition existing during much of the month the relative humidity was less than normal over nearly all portions of the country, the notable exceptions being the greater part of California, and locally in the middle plains, and New England, where there were slight to moderate excesses.

## SEVERE LOCAL HAIL AND WIND STORMS, MAY, 1925

[The table herewith contains such data as have been received concerning severe local storms that occurred during the month. A more complete statement will appear in the Annual Report of the Chief of Bureau]

| Place | Date | Time | Width of path (yards) [1] | Loss of life | Value of property destroyed | Character of storm | Remarks | Authority |
|---|---|---|---|---|---|---|---|---|
| Cleveland, Ohio | 3 | 7.17 p. m. | | | $50,000–75,000 | Thunderstorm | Tower of church damaged; windows broken; 11 persons injured. | Official, United States Weather Bureau. |
| Terre Haute, Ind | 4 | 11.45 a. m. 12.55 p. m. | | | | Thunderstorm and hail. | Tomato and cabbage plants beaten; grape vines and trees injured. | Do. |
| Parkersburg, W. Va | 4 | 1.30 p. m. | 880 | | 500 | Heavy hail | Gardens and fruit trees considerably damaged. Path 6 miles long. | Do. |
| Newton, Utah | 7 | | 1,760 | | | do | Damage principally to alfalfa and beets. Young chickens killed. Path 6 to 7 miles long. | Do. |
| San Antonio, Tex. (vicinity of). | 8 | P. m. | | | 60,000 | Thunderstorm | Stinson Flying Field completely wrecked. Minor damage in other sections. | Do. |
| Trementina, N. Mex | 9 | | | | | do | 100 head of cattle killed | Do. |
| Kenner, La | 10 | 8–9 a. m. | 400 | | | Wind | Trees torn up; roof damaged; ferry boat and landing torn loose. | Do. |
| Cloutierville, La | 11 | 5.30 p. m. | | | | Heavy hail | Several hundred acres of corn and cotton destroyed. | Do. |
| Quincy, Fla. (near) | 12 | 3–4 p. m. | 6 mi. | | 12,000–18,000 | do | Corn, cotton, and truck damaged | Do. |
| Ford and Clark Counties, Kans. | 12 | 5–6 p. m. | 2–10 mi. | | 50,000 | Hail | Growing wheat damaged 25 per cent to total | Do. |
| Harper County, Okla. (northern part of). | 12 | 8–9 p. m. | 10 mi. | | | Severe hail | Great damage to crops | Do. |
| Paducah, Tex | 13 | 4 a. m. | 15–20 mi. | | 10,000 | Hail | Light buildings, crops, and windmills damaged; path 30 miles. | Do. |
| Rogers, Ark. (w. and n. of) | 13 | | 2–3 mi. | | | Heavy hail, wind and rain. | Orchards and gardens considerably injured | Do. |
| Springfield, Mo. (11 miles se. of). | 13 | 10 a. m. | | | | Heavy hail | do | Do. |
| Deaver, Wyo | 14 | 1.20–2 p.m. | 2,640 | | 5,000 | do | Sugar beets, gardens, and alfalfa injured; irrigating canal damaged. | Do. |

[1] mi. signifies miles instead of yards.